REMARKS

In the Office Action, the Examiner withdrew the section 101 rejection, and rejected claims 13 – 17 as anticipated by the Kaufman et al. reference.

The Examiner cites to claims 13 – 17 in section 2, section 4 and provides the basis for rejecting claims 13 – 17 in section 7 of the action, but cites to claims 13 – 26 as rejected in the office action summary sheet at sections 4 and 6 and refers to claims 18 – 26 on page 4 in sections 13 – 16. Clarification of the office action is hereby requested.

35 USC §102(a)

The Kaufman et al. US Patent No. 7,133,041 B2 discloses a three dimensional volume rendering apparatus that uses three dimensional memory units, a pixel buss, a rendering pipeline and a geometry bus. An image is generated by 3D volume projection from a viewpoint. The reference claims to provide a mechanism for visualizing internal and surface structures of high-resolution datasets (col. 3, lines 33 – 35). The reference describes rendering of so-called solid primatives Figure 38 and the corresponding text at col. 55, beginning at line 6, discloses that the surfaces of solid primatives are rendered with shading as determined by the density profile. The density profile changes from a value of one at the center of the solid object to a value of zero at the exterior. This enables the exterior surface to be rendered with smooth shading. The reference seeks to provide volumetric filling of solid objects.

At col. 55, lines 57 – 58, the interior of objects are filled using volumetric filling. The reference describes the ray buffer being wrapped around the outside of a volume (col. 82, lines 45-48). The reference describes avoiding radiosity in the interior of solid objects (col. 82, line 66 – col. 83, line 6). Interestingly, this passage states that solid interiors, which usually have no gradient, are avoided. Additionally, the Kaufman reference seeks to avoid showing objects that are hidden behind and occluded by opaque polygons (see col. 44, lines 32 – 37).

Kaufman discloses a first and second dataset (col. 6, lines 25 – 35) which are used to determine the processing order of the rays. A second dataset according to the present invention is not taught.

By contrast, the present invention provides for imaging features using a depth range that permits less opaque objects to be viewed behind or within more opaque objects. Such

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objects are rendered with complete contrast and depth shading. A gradient is provided, as shown in Figure 4 that extends through the depth of the object. By applying this gradient, the imaging method and apparatus of the present application makes it possible to image features within the interior of an object and behind or which share the image with other more opaque objects. The gradient which extends from the back to the front of the object is used.

This is accomplished, as claimed, by a second volume data set in which the volume elements of the first volume data set are coded depending on depth. No teaching is found in Kaufman to provide such a second volume data set.

In addition, a control is provided to permit a user to selectively vary depth. The control may be a navigation system.

The claimed invention is not taught by nor is it suggested in the cited reference and thus the claims define a novel and non-obvious improvement over the cited art.
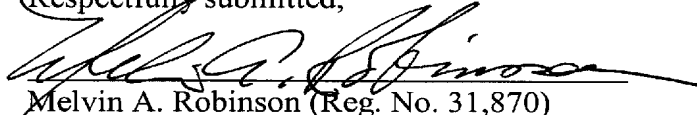
Conclusion

Applicants respectfully request favorable reconsideration and allowance of the present application in view of the forgoing.

Deposit Account Information

The Commissioner is hereby authorized to charge any additional fees which may be required or to credit any overpayment to account no. 501519.

Respectfully submitted,

Melvin A. Robinson (Reg. No. 31,870)
Schiff Hardin LLP
Patent Department
6600 Sears Tower
Chicago, Illinois 60606
Telephone: 312-258-5785
CUSTOMER NO. 26574
ATTORNEY FOR APPLICANT